Identifying the potential for reducing food waste

New research has identified major drivers of food waste around the world. For example, in developing countries a lack of refrigeration technology is a major driver of food waste, and in the developed world low prices and increased choice encourage wasteful behaviour from consumers. Experts predict that drivers such as these will continue to increase food waste.

Over the last several decades attempts have been made to quantify how much food is wasted globally but assessments have relied on limited data. Most significantly, there is a lack of data on the impacts of the developing BRIC economies (Brazil, Russia, India and China) as they undergo a rapid transition towards more diversified diets, which include a higher proportion of more perishable food stuffs. Large knowledge gaps such as these are a concern and estimates of total global food waste range from 10 to 40 per cent of global food production, with limited evidence to enable a best-estimate. Food waste needs to be reduced not only to help ensure the global population is fed but also to reduce environmental impacts, as wasting food also wastes all of the inputs to its production.

The study focused on previous research on drivers of food waste to provide insight into the issue and complemented this with interviews with experts on Food Supply Chains (FSCs). Food waste can occur at several stages within the FSC, ranging from harvesting to processing to consuming. Rapid urbanisation has created a need for the expansion of FSCs to feed urban populations, which requires improvements in transportation and marketing infrastructure. If these extended FSCs are inefficient, more food is wasted.

Changing patterns of consumption also drive food waste, with people eating less starchy foods and more fresh fruit and vegetables (FFVs), dairy, meat and fish. These foodstuffs are more vulnerable with shorter shelf-lives so are more likely to be wasted. Additionally, trade is becoming increasingly globalised with a rapid growth of supermarkets which could produce more waste due to the high quality standards that they set.

The influence of drivers varies between countries. Developing countries have less technology to improve storage so suffer more food waste, for example, 30 per cent of FFV production in India is wasted through lack of refrigeration technology. Countries in transition from developing to developed are suffering from export quality assurance and standards set by supermarkets.

While industrialised nations suffer less waste due to central food processing, increased consumer choice and cheaper food prices (in relation to income) in these countries tends to encourage wasteful behaviour. The Waste and Resources Action Programme (WRAP) in the UK has shown that household waste has reached unprecedented levels with 8.3 megatonnes of food and drink wasted annually. In the US food waste is estimated at 31.79 megatonnes per year.

The researchers interviewed FSC experts who indicated that urbanisation and increasing populations will increase waste globally and suggested that sustainable solutions should be implemented across the entire FSC. In developing countries this would require investment in agricultural infrastructure, storage, transport and distribution. In the developed world, the potential for food waste reduction lies with retailers and consumers.

Policy can play a role, perhaps by supporting the closed-loop supply chain models where waste is fed back into the chain, such as re-use of packaging, finding other outlets for below standard food, and utilising unavoidable food waste as a by-product, such as providing energy from waste or for compost.


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